

Purpose The instrument was developed in order to assess individuals' chronotypes – diurnal preferences that manifest in personal sleep-wake rhythms. Consisting of 19 questions, the scale examines wake and sleep schedules (on both work and free days), energy levels throughout the day, sleep latency and inertia, and exposure to daylight. Individuals are also asked to subjectively rate themselves as one of seven possible chronotypes ranging from extreme early (preferring to rise much earlier than others) to extreme late. This information is combined to determine the time of day at which the respondent is likely to feel most alert, placing them objectively in a chronotype category. Though potentially a valuable tool for clinical purposes, the instrument has primarily been used in research to investigate how chronotype relates to age, sex, and external environment (e.g., exposure to daylight, community).

Population for Testing The scale has been validated in adults of college age and older.

Administration Requiring between 5 and 10 min for completion, developers have created a Web site where individuals can take the self-report questionnaire and have their results sent to them by email. A second version of the questionnaire designed specifically for shift workers is also available.

Reliability and Validity Zavada and colleagues [1] conducted a large-scale study in which

they compared the Horne-Ostberg Morningness-Eveningness Questionnaire (MEQ; (Chap. 54) to the MCTQ. They found that MEQ scores correlated highly with the midpoint of sleep on free days reported on the MCTQ ($r = .70$), and that a respondent's sleep schedule on free days is a good predictor of that individual's chronotype.

Obtaining a Copy The questionnaire is available online at: <http://chrono.biol.rug.nl/mctq-en.html>

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Scoring The scale is scored electronically by the Web site at which it is available. Total scores can range from 16 to 86, with the lowest values representing extreme-late chronotypes. However, personal scores are not available through the questionnaire's Web site, which has been constructed for the sole purpose of the authors' research. Rather, individuals completing questionnaires at the site receive an email providing statistical comparisons of themselves to others in their subjective chronotype. Thus, the Web site itself is of limited clinical or diagnostic utility and arrangements must be made with developers in order to make further use of the instrument.

Munich ChronoType Questionnaire (MCTQ)

Please enter your age, gender, etc. This information is important for our evaluations

Age: _____ female male Height: _____ Weight: _____

On work days...

I have to get up at... _____ o'clock
 I need... _____ min to wake up
 I regularly wake up... _____ before the alarm with the alarm
 From... _____ o'clock I am fully awake
 At around... _____ o'clock, I have an energy dip
 On nights before workdays, I go to bed at _____ o'clock...
 ...and it then takes me... _____ min to fall asleep
 If I get the chance, I like to take a siesta/nap...
 Correct I then sleep for... _____ min
 Not correct I would feel terrible afterwards

On free days (please only judge normal free days, i.e., without parties etc)...

My dream would be to sleep until... _____ o'clock
 I normally wake up at... _____ o'clock
 If I wake up at around the normal (workday) alarm time, I try to get back to sleep...
 Correct Not correct

If I get back to sleep, I sleep for another... _____ min
 I need... _____ min to wake up
 From... _____ o'clock I am fully awake
 At around... _____ o'clock, I have an energy dip
 On nights before free days, I go to bed at _____ o'clock...
 ...and it then takes me... _____ min to fall asleep
 If I get the chance, I like to take a siesta/nap...
 Correct I then sleep for... _____ min
 Not correct I would feel terrible afterwards

Once I am in bed, I would like to read for... _____ min...
 ...but I generally fall asleep after no more than... _____ min

I prefer to sleep in a completely dark room Correct Not Correct
 I wake up more easily when morning light shines into my room Correct Not Correct
 How long per day do you spend on average outside (really outside) exposed to daylight?
 On work days: _____ hrs. _____ min On free days: _____ hrs _____ min

Self Assessment

After you have answered the preceding questions, you should have a feeling to which chronotype (time-of-day-type) you belong to. If, for example, you like (and manage) to sleep quite a bit longer on free days than on workdays, or if you cannot get out of bed on Monday mornings, even without a Sunday-night-party, then you are more a late go to bed early type. If, however, you regularly wake up and feel perky once you jump out of bed, and if you would rather than to an evening concert then you are an early type. In the following questions, you should categorise yourself and your family members.

Please tick only one possibility!

Description of categories:	extreme	early type = 0
	Moderate	early type = 1
	Slight	early type = 2
		Normal type = 3
	Slight	late type = 4
	Moderate	late type = 5
	Extreme	late type = 6

I am...	0	1	2	3	4	5	6
As a child, I was...	0	1	2	3	4	5	6
As a teenager, I was...	0	1	2	3	4	5	6
In case you are older than 65: in the middle of my life, I was...	0	1	2	3	4	5	6

My parents are/were...							
Mother...	0	1	2	3	4	5	6
Father...	0	1	2	3	4	5	6
My siblings are/were ...(please underline Brother or Sister)							
Brother/Sister	0	1	2	3	4	5	6
Brother/Sister	0	1	2	3	4	5	6
Brother/Sister	0	1	2	3	4	5	6
Brother/Sister	0	1	2	3	4	5	6
Brother/Sister	0	1	2	3	4	5	6
Brother/Sister	0	1	2	3	4	5	6
Brother/Sister	0	1	2	3	4	5	6
My partner (girl/boy friend, spouse, significant other) is/was...							
	0	1	2	3	4	5	6

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References

1. Zavada, A., Gordijn, M. C., Beersma, D. G., Daan, S., & Roenneberg, T. (2005). Comparison of the Munich Chronotype Questionnaire with the Horne-Ostberg's Morningness-Eveningness Score. *Chronobiology International*, 22(2), 267–278.

2. Roenneberg, T, Wirz-Justice, A., Merrow, M. Life between clocks: daily temporal patterns of human chronotypes. *J Biol Rhythms* 2003;18(1):80–90.

Representative Studies Using Scale

Kantermann, T., Juda, M., Merrow, M., & Roenneberg, T. (2007). The human circadian clock's seasonal adjustment is disrupted by daylight saving time. *Current Biology*, 17(22), 1996–2000.